

**WHAT IS CLAIMED IS:**

1. A control system for controlling the compressed air applied to one or more spray nozzles used in a flue gas cooling system wherein the one or more nozzles are of the type that operate to receive pressurized liquid and pressurized air and to provide an atomized liquid oriented at the flue gas to thereby cool the same, comprising:

a liquid supply line coupled with the one or more spray nozzles including a flow meter disposed therein for sensing a flow rate of liquid supplied to the one or more spray nozzles;

a compressed air supply line including an air flow valve disposed to adjust the amount of compressed air supplied to the one or more spray nozzles; and

a spray controller couple with the flow meter and the air flow valve, the controller being disposed to provide a control signal to the air flow valve to adjust the amount of compressed being supplied to the one or more nozzles as a function of sensed liquid flow rate.

2. The invention of claim 1 further comprising:

an adjustable liquid flow valve disposed in the liquid spray supply line disposed to receive a control signal from the controller to adjust the amount of liquid supplied to the one or more spray nozzles; and

a temperature sensor located in proximate relation to the flue gases and disposed to provide a temperature sensing signal to the controller, wherein the controller in

response to receipt of the temperature sensing signal, adjusts control signal supplied to the liquid flow valve.

3. The invention as in claim 2 wherein the controller provides a signal to the liquid flow valve to increase the liquid flow supplied to the one or more nozzles when an increase in temperature is sensed.

4. The invention as in claim 3 wherein the controller provides a signal to the liquid flow valve to decrease the liquid flow supplied to the one or more nozzles when a decrease in temperature is sensed.

5. A method for controlling the amount of compressed air applied to one or more spray nozzles of the type used in the cooling of flue gases and that is operative to receive pressurized liquid and pressurized air and to supply an atomized liquid spray comprising the steps of:

determining a required pressure flow rate for various operating liquid flow rates being applied to the one or more spray nozzles;

monitoring the actual liquid flow rate being applied to the one or more spray nozzles; and

adjusting the compressed air supply as a function of the applied liquid flow rate.

6. The invention as in claim 5 further comprising the step of:

monitoring an outlet temperature of the flue gases; and

adjusting the liquid flow rate being applied to the one or more spray nozzles as a function of the monitored temperature.